Stuttgarter Beiträge zur Naturkunde
Serie A (Biologie)

Herausgeber:

Staatliches Museum für Naturkunde, Rosenstein 1, D-70191 Stuttgart

Stuttgarter Beitr. Naturk.	Ser. A	Nr. 648	9 S., 8 Abb.	Stuttgart, 4. VI. 2003

Galeruca (*Galemira* n. subgen.) *subcostata* n. sp. from Pakistan (Coleoptera: Chrysomelidae)[1]

Ron Beenen

Abstract

During revisional study of the genus *Galeruca* it became clear that *Galeruca sexcostata* and some other species from the Himalayas and the Tibetan plateau have to be attributed to a new subgenus, *Galemira* **n. subgen.**, described herein. Apart from the type species of the subgenus, *G. sexcostata*, the species *G. himalayensis*, *G. barovskyi* and *G. subcostata* **n. sp.** are included in this new subgenus. A key is presented, including also *G. comaica* and *G. gyangzea* probably belonging to this subgenus too. Lectotypes are designated for *G. himalayensis* and *G. sexcostata*.
Keywords: *Galeruca*, *Galemira*, Chrysomelidae, Pakistan.

Zusammenfassung

Während Revisionsarbeiten innerhalb der Gattung *Galeruca* wurde deutlich, dass *Galeruca sexcostata* und einige andere Arten aus dem Himalaya und dem Plateau von Tibet einer neuen Untergattung zugeordnet werden müssen. *Galemira* **n. subgen.** wird hier beschrieben. Zusätzlich zu der Typusart der Untergattung, *G. sexcostata*, werden die Arten *G. himalayensis*, *G. barovskyi* und *G. subcostata* **n. sp.** in diese Untergattung gestellt. Ein Bestimmungsschlüssel wird erstellt, der auch *G. comaica* und *G. gyangzea* umfasst, die wahrscheinlich ebenfalls in diese Untergattung gehören. Für *G. himalayensis* und *G. sexcostata* werden Lectotypen festgelegt.

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1 Introduction

Recently WOLFGANG SCHAWALLER of the Staatliches Museum für Naturkunde (Stuttgart) provided me with unidentified specimens of the chrysomelid genus *Galeruca*. Among them were two specimens from Pakistan of a yet unknown species. A study of these specimens and the most similar species, revealed that they have to be attributed to a yet not recognised subgenus of *Galeruca, Galemira* n. subgen., described herein. The syntypes of *Galeruca himalayensis* Jacoby and *Galeruca sexcostata* Jacoby were reexamined; lectotypes and paralectotypes have been designated and some additional information on these species is presented. The species of the new subgenus are included in a key.

Acronyms

BMNH Natural History Museum, London, United Kingdom
RBCN Collection RON BEENEN, Nieuwegein, The Netherlands
SMNS Staatliches Museum für Naturkunde, Stuttgart, Germany

Acknowledgements

SHARON SHUTE (London) and HANS DUFFELS (Amsterdam) provided the possibilities to study the types of *Galeruca himalayensis* and *Galeruca sexcostata*. WOLFGANG SCHAWALLER (Stuttgart) kindly let me study some unidentified *Galeruca* specimens among which the specimens of *Galeruca subcostata* n. sp. Finally, my friends UWE HEINIG (Berlin) and DIETER ERBER (Giessen) made specimens available for this study.

2 Taxonomy

2.1 *Galeruca* (*Galemira* **n. subgen.**)

Type species: *Galeruca sexcostata* Jacoby, 1904; gender: female.

Description

Metasternum short. Apterous. Elytra short, not completely covering the abdomen. Flattened expansion of elytral margin hardly depressed.

Diagnosis

The new subgenus shows much similarity to the subgenus *Galerima* Reitter, 1903. The two taxa can be separated by some characters of the elytra. In *Galemira* n. subgen. the lateral groove is very shallow at the level of the humerus and the inner portion of the apex of the elytron is obliquely truncate. In *Galerima* the lateral groove is deep at the level of the humerus and the apex of the elytron is broadly rounded. The species of *Galemira* n. subgen. occur in the mountains of northern India and Pakistan (Kashmir, western Himalayas) and the plateau of Tibet. The species of *Galerima* occur in the Pyrenees.

Etymology

The name "Galemira" is a combination of "Galeruca" and "Mira". "Mira" means in Sanskrit, among many other meanings, "the mountain", referring in this case to the western Himalayas in Pakistan, where the types of *G. subcostata* n. sp. have been found.

Composition

Apart from the type species the following species are included in the subgenus *Galemira* n. subgen.: *Galeruca subcostata* n. sp., *Galeruca himalayensis* Jacoby, 1896

and *Galeruca barovskyi* Jacobson, 1925. Furthermore *Galeruca comaica* Chen & Jiang, 1981 (CHEN & JIANG 1981) and *Galeruca gyangzea* Chen & Jiang, 1987 (CHEN & JIANG 1987) are supposed to belong to this subgenus. It is uncertain whether they are correctly attributed to this subgenus; only the study of the relevant types can clarify this question. Despite several efforts it proved to be impossible to have these specimens made available for this study.

2.2 *Galeruca (Galemira) subcostata* **n. sp.**

Material

Holotype, ♂ (SMNS): "PAKISTAN: Shogran, Kagan Valley, 28–30.VII.1998, leg. J. REJSEK / TYPUS, *G. subcostata*, R. BEENEN det 02".

Paratype, ♂ (RBCN): "PAKISTAN: Shogran, Kagan Valley, 28–30.VII. 1998, leg. J. REJSEK / PARATYPUS, *G. subcostata*, R. BEENEN det 02".

Etymology

The name "subcostata" refers to the weakly developed costae on the elytra in this new species.

Description

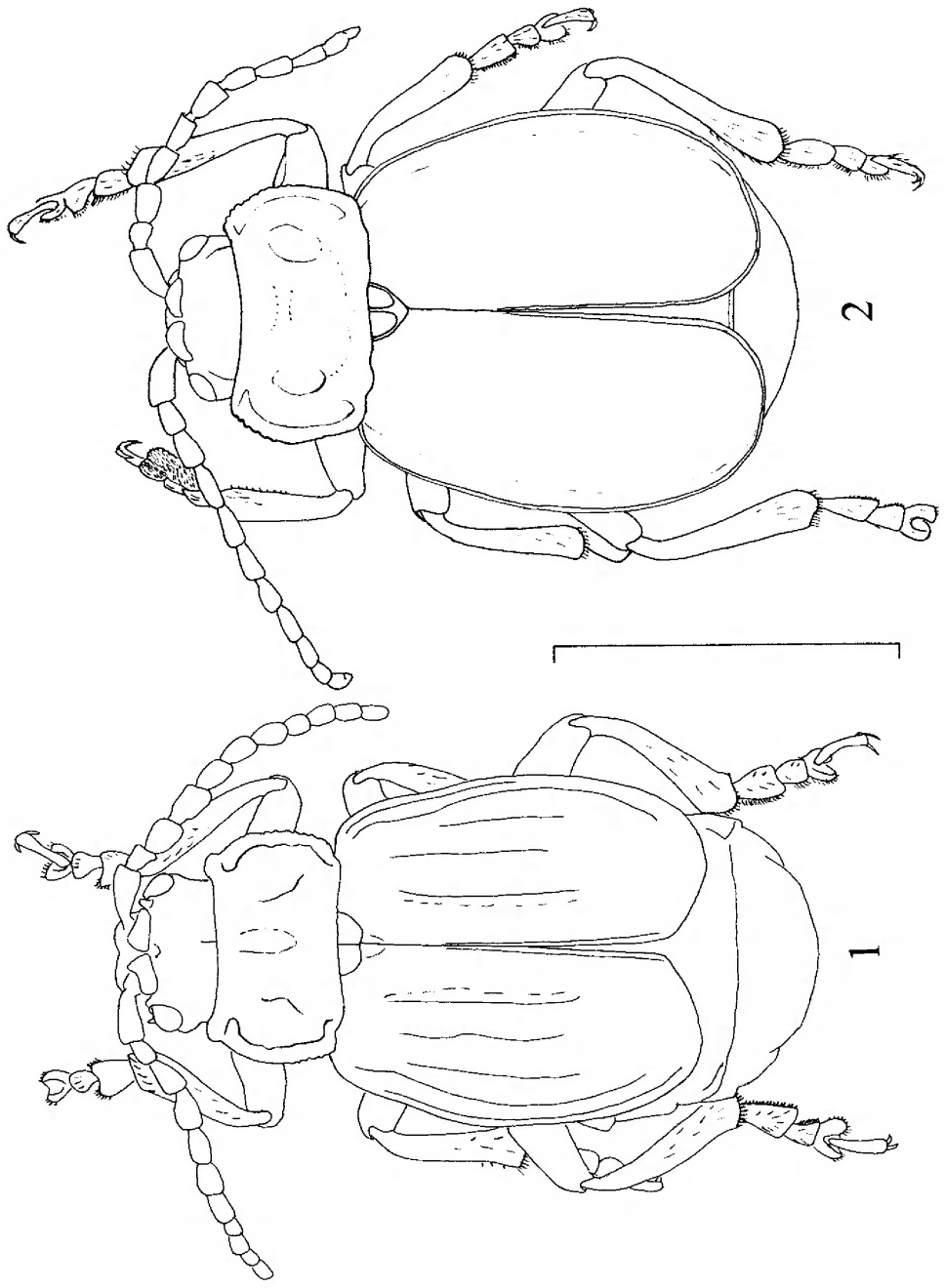
Holotype, ♂. Length: 9.6 mm (total); 7.6 mm (from the anterior border of the eyes to the tip of the elytra). Greatest width across both elytra: 4.85 mm. Without wings (apterous). General colour black; elytra slightly greasy shining bicoloured. Outer margins and a small area near the scutellum yellow. Oblong; elytra flattened and broad, with vestiges of costae, covering the abdomen partly; 2 abdominal tergites visible. Habitus as in Fig. 1.

Head: maximal width of head across the eyes: 2.15 mm. Vertex sparsely punctate. Length of hairs a bit longer than the diameter of the punctures they stand in. Vertex with a fine and regular median longitudinal line. This line is situated in a deep depression posterior to the frontal tubercles. Frontal tubercles well defined; impunctate. Antennae strong: segments 3 and 4 notably dilated. Antennal segments 1 to 6 shiny; ventral and dorsal part of segment 7 pubescent; apical part produced; segments 8 and 9 with dorsal part dull due to pubescence, ventral part shining; segment 10 almost completely dull, only a small line on ventral part shining; segment 11 completely dull due to pubescence. Labrum with seven punctures of which the large bristles might have been rubbed of (see description of paratype). Apical margin marginate. Maxillary palps with apical segment cone shaped.

Pronotum: maximal width: 3.2 mm (in middle); maximal length in the middle: 1.6 mm. Front border arched. Front corners thickened. Front angles slightly depressed. Lateral borders rounded with lateral edges partly serrate. Base of pronotum straight; outer parts slightly curved inward. Surface of lateral margins depressed and rugose. Upper surface uneven; lateral depressions a bit stronger than the longitudinal depression in the middle and the transverse depression at the base. Punctures strong, evenly spread. No hairs on the pronotum. Surface of the pronotum black, shining.

Scutellum: broadly rounded. Surface with a longitudinal depression and only few punctures. Black, shining.

Elytra: almost parallel. Apical margin broadly rounded at the outer lateral angles, turning obliquely inwards towards the sutural angle. On each elytron there are the vestiges of three costae (Fig. 6). The surface is closely, coarsely and confusedly punctate. Flattened expansion of elytral margin hardly depressed. Punctures at apical part



Figs. 1–2. Habitus, dorsal view. – **1.** *Galeruca subcostata* n. sp. **2.** *Galeruca himalayensis*. – Scale: 5 mm.

of elytron less impressed than at base of elytron. Elytral epipleura impunctate and shining.
Underside: male genital groove in last abdominal sternite distinct. Legs black. Claws pseudobifid (inner lobe of claw much smaller than outer lobe).
Aedeagus: see Figs. 3a, 3b.

In the holotype aedeagus and tegmen are glued to the same card as the beetle. The claw segment of the left front leg and the tarsus of the right middle leg are missing.

Paratype, ♂. Length: 7.35 mm (total); 6.9 mm (from the anterior border of the eyes to the tip of the elytra). Greatest width across both elytra: 4.55 mm. Without wings (apterous). General colour black; elytra shining bicoloured. Outer margins yellow. Oblong; elytra flattened and broad, with vestiges of costae, covering the abdomen almost completely; apical part of last abdominal tergite visible.

The paratype is very similar to the type. The surface of the elytra is more shining. Furthermore, the punctures at the base of the elytra are partly fused.

In the paratype the claw segments of the right front leg and of the right hind leg are missing, as well as the tarsus of the left middle leg and the complete left hind leg.

Diagnosis

This new species is the only one in the subgenus with the combination of black pronotum and elytra with vague costae. Although the colour of the pronotum is black it resembles mostly *G. sexcostata*, which sometimes also has a black (or dark brown) pronotum. However, *G. sexcostata* has very apparent elytral costae. Furthermore the aedeagus of the new species (Figs. 3a, 3b) differs from that of *G. sexcostata* (Figs. 4a, 4b) in having a much larger basal part.

2.3 *Galeruca (Galemira) himalayensis* Jacoby, 1896

Galeruca himalayensis: JACOBY (1896: 283)
Galeruca himalayensis: MAULIK (1936: 100)

The syntypes and one further specimen, preserved in the Natural History Museum (London), could be studied. I hereby fix the lectotype and the paralectotype. For an extensive description of this species I refer to MAULIK (1936). Only additional characters will be presented here.

Material

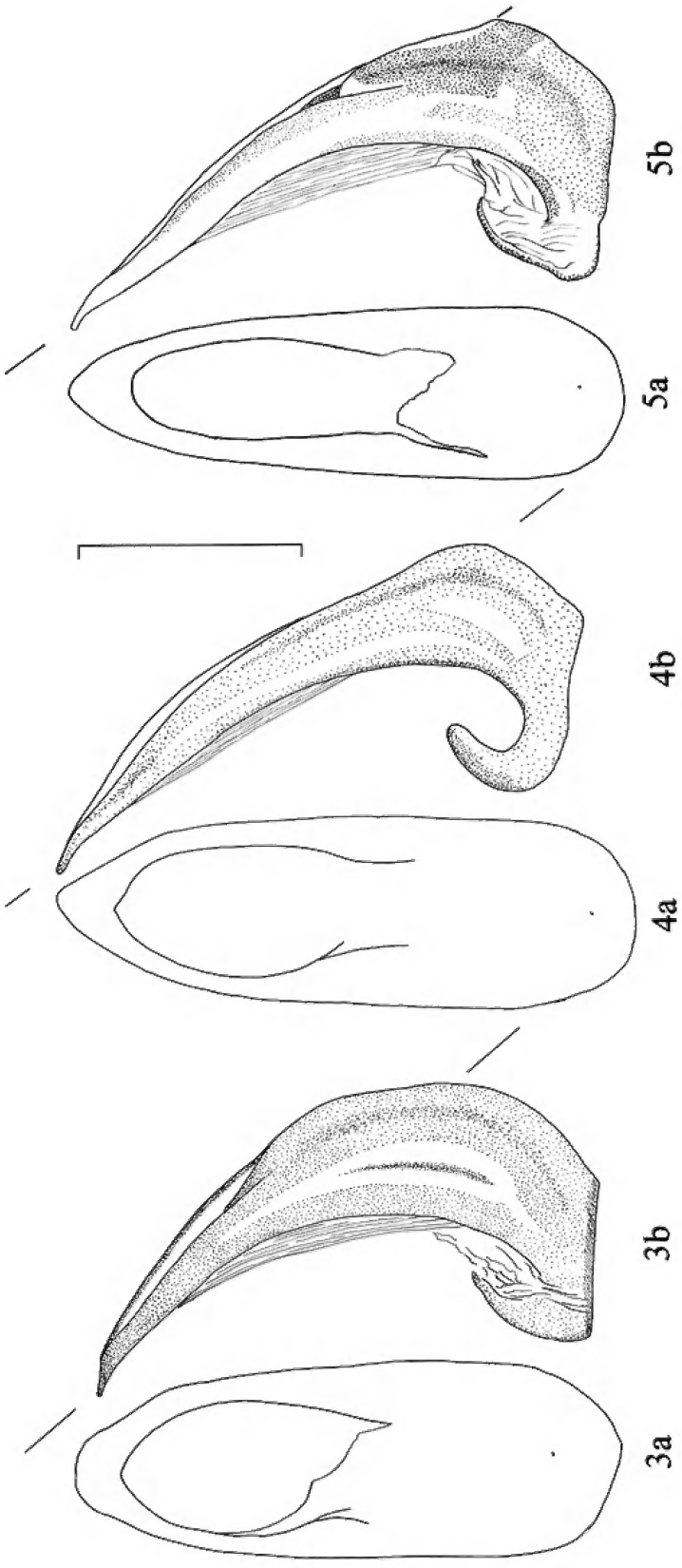
Lectotype, by present designation (BMNH): "Dalhousie [hand written] / Type / Jacoby coll., 1909 28a / *Galeruca himalayensis* Jac., ♂ [hand written] / Andrewes, Bequest., 1922–221. / SYNTYPE / *Galeruca himalayensis* Jacoby, 1896, Lectotype design. R. BEENEN 2002". Male specimen.

Paralectotype, by present designation (BMNH): "Type HT / Dalhousie [hand written] / Jacoby coll., 1909 28a / *Galeruca himalayensis* Jac., ♀ [hand written] / SYNTYPE / *Galeruca himalayensis* Jacoby, 1896, Paralectotype design. R. BEENEN 2002". Female specimen.

Additional material (BMNH): "Col. A. Newham, Dalhosie, 4.1.1912 / *Adimonia* sp. / Andrewes, Bequest., 1922–221. / *Galeruca himalayensis* Jacoby, 1896, R. BEENEN det. 2002". Male specimen.

Measurements, condition, and further remarks

Lectotype: ♂. Length: 7.2 mm (total); 6.7 mm (from the anterior border of the eyes to the tip of the elytra). Greatest width across both elytra: 4.4 mm. Head: maximal width of head across the eyes: 1.95 mm. Pronotum: maximal width: 3.1 mm; maximal length in the middle: 1.45 mm.



Figs. 3–5. Aedeagus, dorsal view (a), left lateral view (b). – **3.** *Galeruca subcostata* n. sp. **4.** *Galeruca sexcostata*. **5.** *Galeruca himalayensis*. – Scale: 1 mm.

The lectotype has a large hole in the right elytron and the abdomen due to a pin. The specimen is glued to a card. Missing parts of the legs: tarsus of the left fore leg, tibia and tarsus of the left middle leg, tarsal segments 2 and following of the left hind leg; tibia and tarsus of the right fore leg, right middle leg, tarsal segments 3 and following of the right hind leg. From the left antenna only 3 segments remain; from the right antenna 7 segments remain.

Paralectotype: ♀. Length: 10 mm (total); 8.4 mm (from the anterior border of the eyes to the tip of the elytra). Greatest width across both elytra: 5.75 mm. Head: maximal width of head across the eyes: 2.35 mm. Pronotum: maximal width: 3.6 mm; maximal length in the middle: 1.65 mm.

The paralectotype is pinned. From both left fore leg and left middle leg tarsi are missing.

Additional specimen: ♂. Length: 8.75 mm (total); 8.05 mm (from the anterior border of the eyes to the tip of the elytra). Greatest width across both elytra: 5.55 mm. Head: maximal width of head across the eyes: 2.2 mm. Pronotum: maximal width: 3.55 mm; maximal length in the middle: 1.7 mm.

This specimen is pinned. Only the first segment of the tarsus of the left middle leg remains. The claw segment of the left hind leg is missing. The aedeagus and tegmen are glued to a card that is fixed to the same pin as the specimen.

The scutellum of the additional specimen has a longitudinal depression in the middle. Male antenna from additional specimen: Antennal segments 1 to 6 shiny; dorsum of apical part of segment 7 slightly produced and pubescent; segments 8 and 9 with dorsal part dull due to pubescence, ventral part shining; segment 10 almost completely dull, only a small spot on ventral part shining; segment 11 completely dull due to pubescence.

The pitchy brown colour and duller upper surface of the lectotype is probably due to immaturity. The additional male specimen has colour and elytral structure as in the female. It is interesting that *Galeruca himalayensis* is the only species in this subgenus with bifid claws. The other species have pseudobifid claws.

The habitus of *G. himalayensis* is depicted in Fig. 2. The aedeagus is depicted in Figs. 5a, 5b.

2.4 *Galeruca (Galemira) sexcostata* Jacoby, 1904

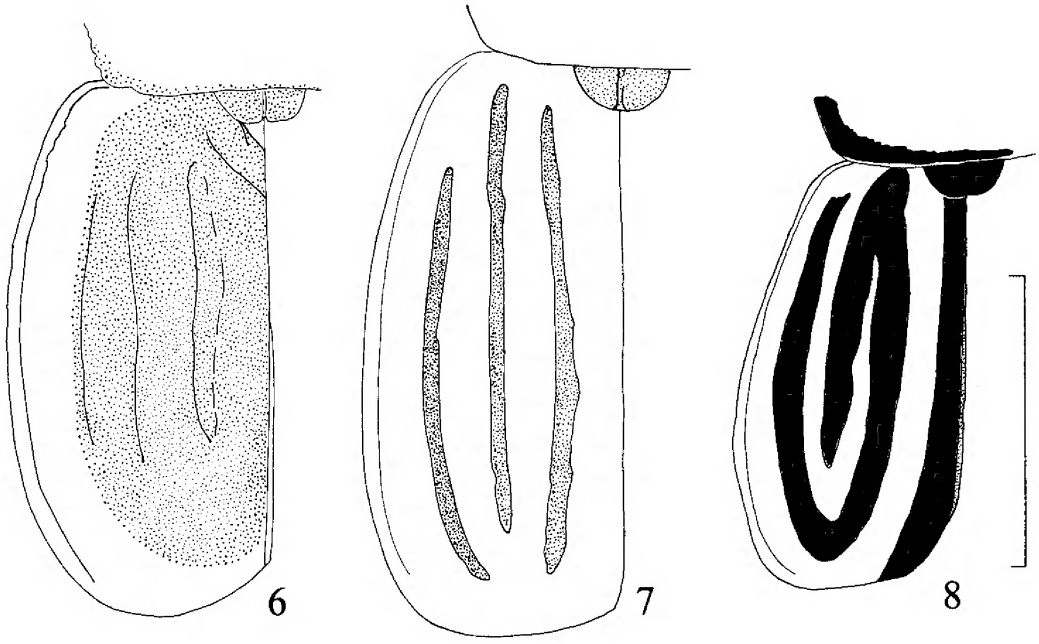
Galeruca sexcostata: JACOBY (1904: 405)
Galeruca sexcostata: MAULIK (1936: 102)
Galeruca sexcostata: ABDULLAH & QURESHI (1969: 396)

The syntypes and further specimens, preserved in the National History Museum (London), could be studied. I hereby fix the lectotype and the paralectotype. For an extensive description of this species I refer to MAULIK (1936). The specimens studied did not differ from this description.

Material

Lectotype, by present designation (BMNH): "Type H. T. [circular label, borders red] / Lidder 1100′ / Jacoby Coll. 1909–28a / *Galeruca 6 costata* Jac. [blue label, hand written] / SYNTYPE [circular label, borders blue] / *Galeruca sexcostata* Jacoby LECTOTYPE design. R. BEENEN 2002".

Paralectotype, by present designation (BMNH): "Lidder 1100′ / Type [red label] / *Galeruca 6 costata* Jac. Type [hand written] / Andrewes Bequest. B. M. 1922–221. / SYNTYPE [circular label, borders blue] / *Galeruca sexcostata* Jacoby PARALECTOTYPE design. R. BEENEN 2002".



Figs. 6–8. Left elytron. – **6**. *Galeruca subcostata* n. sp. **7**. *Galeruca sexcostata*. **8**. *Galeruca barovskyi*. – Scale: 3 mm.

Measurements and condition

Lectotype: ♂. Length: 9.15 mm (total); 7.4 mm (from the anterior border of the eyes to the tip of the elytra). Greatest width across both elytra: 4.95 mm. Head: maximal width of head across the eyes: 2.15 mm. Pronotum: maximal width: 3.35 mm; maximal length in the middle: 1.45 mm.

The lectotype is pinned. The specimen is complete.

Paralectotype: ♂. Length: 8.5 mm (total); 7.45 mm (from the anterior border of the eyes to the tip of the elytra). Greatest width across both elytra: 4.65 mm. Head: maximal width of head across the eyes: 2.1 mm. Pronotum: maximal width: 3 mm; maximal length in the middle: 1.5 mm.

The paralectotype is pinned. The left antenna and the left fore tarsus are missing. The apical half of the aedeagus is well visible.

3 Key to the species of the subgenus *Galemira* n. subgen.

1 Pronotum black 2
– Pronotum yellow or brown, sometimes with black marking 5
2 Elytra with distinct costae 3
– Elytra without costae or only with vestiges of costae 4
3 Costae wide and flat (Fig. 8) ..... *barovskyi*
– Costae fine and emerging (Fig. 7) ..... *sexcostata*
4 Without costae. Elytra unicoloured black or dark brown ..... *himalayensis*
– With vestiges of costae. Elytra bicoloured: black, bordered with yellow (Fig. 6) ..... *subcostata* **n. sp.**

5 Elytra with distinct costae (Fig. 7) ..... ***sexcostata***
– Elytra without distinct costae **6**
6 Elytra with lateral and basal parts yellow ..... ***comaica****
– Elytra with basal and apical parts yellow ..... ***gyangzea****

* The species *G. comaica* and *G. gyangzea* have not been studied, their inclusion in the key has been the result of interpreting the original publications only.

4 Distributional data of the species of the subgenus *Galemira* n. subgen.

Galeruca barovskyi: Sichuan, Xizang (China)
Galeruca sexcostata: Kashmir; Punjab (India)
Galeruca himalayensis: only known from Dalhousie (India: Himachal Pradesh)
Galeruca subcostata n. sp.: Shogran (Pakistan)
Galeruca comaica: Xizang (China)
Galeruca gyangzea: Xizang (China)

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Author's address:

RON BEENEN, Martinus Nijhoffhove 51, 3437 ZP Nieuwegein, The Netherlands; e-mail: r.beenen@wxs.nl

Manuscript received: 2.I.2003, accepted: 26.II.2003.

ISSN 0341-0145

Autoren-Richtlinien: http://www.naturkundemuseum-bw.de/stuttgart/schriften
Schriftleitung: Dr. Hans-Peter Tschorsnig, Rosenstein 1, 70191 Stuttgart
Gesamtherstellung: Gulde-Druck GmbH, 72072 Tübingen